



SEQUENCE LISTING

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Newton, Dianne L.
The United States of America
as represented by The Secretary of the
Department of Health and Human Services

<120> Recombinant Anti-Tumor RNase

<130> 015280-343100US

<140> US 09/622,613

<141> 2000-08-17

<150> US 60/079,751

<151> 1998-03-27

<150> WO PCT/US99/06641

<151> 1999-03-26

<160> 43

<170> PatentIn Ver. 2.0

<210> 1

<211> 312

<212> DNA

<213> Rana pipiens

<220>

<221> CDS

<222> (1)..(312)

<223> ribonuclease (RaPLR1)

<400> 1

caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat 48
Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
1 5 10 15

gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag gac 96
Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp
20 25 30

aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc tgt 144
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
35 40 45

aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt tat 192
Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr
50 55 60

ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta aag 240
Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
65 70 75 80

aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta 288
Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
85 90 95

cat ttc gtg ggt gtc gga cat tgc 312

His Phe Val Gly Val Gly His Cys
100

<210> 2
<211> 104
<212> PRT
<213> Rana pipiens

<400> 2
Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
1 5 10 15
Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp
20 25 30
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
35 40 45
Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr
50 55 60
Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
65 70 75 80
Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
85 90 95

His Phe Val Gly Val Gly His Cys
100

<210> 3
<211> 312
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Rana pipiens
ribonuclease with Met23Leu substitution
(recombinant RaPLR1 Met23Leu)

<220>
<221> CDS
<222> (1)..(312)
<223> RaPLR1 Met23Leu

<400> 3
caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat 48
Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
1 5 10 15
gtt gac tgt aat aat atc ctg tca aca aac ttg ttc cac tgc aag gac 96
Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys Asp
20 25 30
aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc tgt 144
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
35 40 45
aaa gga att ata gcc tcc aaa aat gtg tta act acc ttt gag ttt tat 192

Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Phe Glu Phe Tyr
 50 55 60
 ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta aag 240
 Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
 65 70 75 80
 aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta 288
 Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
 85 90 95
 cat ttc gtg ggt gtc gga cat tgc 312
 His Phe Val Gly Val Gly His Cys
 100

<210> 4
 <211> 104
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana pipiens
 ribonuclease with Met23Leu substitution
 (recombinant RaPLR1 Met23Leu)

<400> 4
 Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
 1 5 10 15
 Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys Asp
 20 25 30
 Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
 35 40 45
 Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Phe Glu Phe Tyr
 50 55 60
 Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
 65 70 75 80
 Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
 85 90 95
 His Phe Val Gly Val Gly His Cys
 100

<210> 5
 <211> 315
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana pipiens
 ribonuclease with Met at position 1 (recombinant
 Met(-1) RaPLR1)

<220>
 <221> CDS

<222> (1)..(315)

<223> Met(-1) RaPLR1

<400> 5

atg caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg 48
Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg
1 5 10 15

gat gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag 96
Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys
20 25 30

gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc 144
Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile
35 40 45

tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt 192
Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe
50 55 60

tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta 240
Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu
65 70 75 80

aag aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca 288
Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro
85 90 95

gta cat ttc gtg ggt gtc gga cat tgc 315
Val His Phe Val Gly Val Gly His Cys
100 105

<210> 6

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Met at position 1 (recombinant
Met(-1) RaPLR1)

<400> 6

Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg
1 5 10 15

Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys
20 25 30

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile
35 40 45

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe
50 55 60

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu
65 70 75 80

Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro
85 90 95

Val His Phe Val Gly Val Gly His Cys
100 105

<210> 7
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Met at position 1 and Met24Leu
substitution (recombinant Met(-1) RaPLR1 Met23Leu)

<220>
<221> CDS
<222> (1)..(315)
<223> Met(-1) RaPLR1 Met23Leu

<400> 7
atg caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg 48
Met Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg
1 5 10 15

gat gtt gac tgt aat aat atc ctg tca aca aac ttg ttc cac tgc aag 96
Asp Val Asp Cys Asn Asn Ile Leu Ser Thr Asn Leu Phe His Cys Lys
20 25 30

gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc 144
Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile
35 40 45

tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc ttt gag ttt 192
Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Phe Glu Phe
50 55 60

tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta 240
Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu
65 70 75 80

aag aaa tca act att aca ttt tgt gta act tgt gag aat caa gct cca 288
Lys Lys Ser Thr Ile Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro
85 90 95

gta cat ttc gtg ggt gtc gga cat tgc 315
Val His Phe Val Gly Val Gly His Cys
100 105

<210> 8
<211> 105
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Met at position 1 and Met24Leu
substitution (recombinant Met(-1) RaPLR1 Met23Leu)

<400> 8

Met	Gln	Asp	Trp	Leu	Thr	Phe	Gln	Lys	Lys	His	Leu	Thr	Asn	Thr	Arg
1				5					10					15	
Asp	Val	Asp	Cys	Asn	Asn	Ile	Leu	Ser	Thr	Asn	Leu	Phe	His	Cys	Lys
		20						25					30		
Asp	Lys	Asn	Thr	Phe	Ile	Tyr	Ser	Arg	Pro	Glu	Pro	Val	Lys	Ala	Ile
		35					40					45			
Cys	Lys	Gly	Ile	Ile	Ala	Ser	Lys	Asn	Val	Leu	Thr	Thr	Phe	Glu	Phe
	50					55					60				
Tyr	Leu	Ser	Asp	Cys	Asn	Val	Thr	Ser	Arg	Pro	Cys	Lys	Tyr	Lys	Leu
	65				70					75					80
Lys	Lys	Ser	Thr	Ile	Thr	Phe	Cys	Val	Thr	Cys	Glu	Asn	Gln	Ala	Pro
				85					90					95	
Val	His	Phe	Val	Gly	Val	Gly	His	Cys							
			100					105							

<210> 9
 <211> 111
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Rana pipiens
 ribonuclease with (His)6 tag, Met at position 7
 and Met30Leu substitution (recombinant Met(-1)
 RaPLR1 Met23Leu-(His)6)

B1

His	His	His	His	His	His	Met	Gln	Asp	Trp	Leu	Thr	Phe	Gln	Lys	Lys
1				5					10					15	
His	Leu	Thr	Asn	Thr	Arg	Asp	Val	Asp	Cys	Asn	Asn	Ile	Leu	Ser	Thr
			20					25					30		
Asn	Leu	Phe	His	Cys	Lys	Asp	Lys	Asn	Thr	Phe	Ile	Tyr	Ser	Arg	Pro
		35					40					45			
Glu	Pro	Val	Lys	Ala	Ile	Cys	Lys	Gly	Ile	Ile	Ala	Ser	Lys	Asn	Val
	50					55					60				
Leu	Thr	Thr	Phe	Glu	Phe	Tyr	Leu	Ser	Asp	Cys	Asn	Val	Thr	Ser	Arg
	65				70					75					80
Pro	Cys	Lys	Tyr	Lys	Leu	Lys	Lys	Ser	Thr	Ile	Thr	Phe	Cys	Val	Thr
				85					90					95	
Cys	Glu	Asn	Gln	Ala	Pro	Val	His	Phe	Val	Gly	Val	Gly	His	Cys	
			100					105					110		

<210> 10
 <211> 312
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Gln1Ser substitution
(recombinant RaPLR1 Q1S)

<220>

<221> CDS

<222> (1)..(312)

<223> RaPLR1 Q1S

<400> 10

tca gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg gat 48
Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
1 5 10 15

gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag gac 96
Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp
20 25 30

aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc tgt 144
Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
35 40 45

aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt tat 192
Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr
50 55 60

ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta aag 240
Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
65 70 75 80

aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca gta 288
Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
85 90 95

cat ttc gtg ggt gtc gga cat tgc 312
His Phe Val Gly Val Gly His Cys
100

<210> 11

<211> 104

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Gln1Ser substitution
(recombinant RaPLR1 Q1S)

<400> 11

Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg Asp
1 5 10 15

Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys Asp
20 25 30

Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile Cys
35 40 45

Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe Tyr

50 55 60

Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu Lys
65 70 75 80

Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro Val
85 90 95

His Phe Val Gly Val Gly His Cys
100

<210> 12
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Rana pipiens
ribonuclease with Met at position 1 and Gln2Ser
substitution (recombinant Met(-1) RaPLR1 Q1S)

<220>
<221> CDS
<222> (1)..(315)
<223> Met(-1) RaPLR1 Q1S

<400> 12

atg tca gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg	48
Met Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg	
1 5 10 15	
gat gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag	96
Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys	
20 25 30	
gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc	144
Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile	
35 40 45	
tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt	192
Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe	
50 55 60	
tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta	240
Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu	
65 70 75 80	
aag aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca	288
Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro	
85 90 95	
gta cat ttc gtg ggt gtc gga cat tgc	315
Val His Phe Val Gly Val Gly His Cys	
100 105	

<210> 13
<211> 105
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens
ribonuclease with Met at position 1 and Gln2Ser
substitution (recombinant Met(-1) RaPLR1 Q1S)

<400> 13

Met Ser Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg
1 5 10 15

Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys
20 25 30

Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile
35 40 45

Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe
50 55 60

Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu
65 70 75 80

Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro
85 90 95

Val His Phe Val Gly Val Gly His Cys
100 105

<210> 14

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana
catesbeiana oocyte ribonuclease (RaCOR1) synthetic
gene modified to use E. coli preferred codons

<220>

<221> CDS

<222> (1)..(330)

<223> RaCOR1 for E. coli expression system

<400> 14

cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg atc 48
Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile
1 5 10 15

atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt cag 96
Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
20 25 30

tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144
Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
35 40 45

gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act cgt 192
Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg
50 55 60

ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240
Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
65 70 75 80

ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288
Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
85 90 95

aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 330
Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
100 105 110

<210> 15
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana oocyte ribonuclease (RaCOR1) synthetic
gene modified to use E. coli preferred codons

<400> 15
Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile
1 5 10 15

Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
20 25 30

Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
35 40 45

Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg
50 55 60

Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
65 70 75 80

Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
85 90 95

Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
100 105 110

<210> 16
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease with Met at position 1
(recombinant Met(-1) RaCOR1)

<220>
<221> CDS
<222> (1)..(333)
<223> Met(-1) RaCOR1

<400> 16
atg cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg 48
Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
1 5 10 15
atc atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt 96
Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly
20 25 30
cag tgc aaa cgt gtt acc act ttc atc atc tct tct gct act act gtt 144
Gln Cys Lys Arg Val Thr Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
35 40 45
aaa gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act 192
Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr
50 55 60
cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg 240
Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
65 70 75 80
tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc 288
Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
85 90 95
gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 333
Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
100 105 110

<210> 17
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease with Met at position 1
(recombinant Met(-1) RaCOR1)

<400> 17
Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
1 5 10 15
Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly
20 25 30
Gln Cys Lys Arg Val Thr Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
35 40 45
Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr
50 55 60
Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
65 70 75 80
Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
85 90 95
Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
100 105 110

<210> 18
 <211> 330
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met22Leu and
 Met75Leu substitutions (recombinant RaCOR1
 Met22Leu Met57Leu)

<220>
 <221> CDS
 <222> (1)..(330)
 <223> RaCOR1 Met22Leu Met57Leu

<400> 18
 cag aac tgg gct act ttc cag cag aaa cat atc atc aaa act ccg atc 48
 Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Lys Thr Pro Ile
 1 5 10 15
 atc tgc aac act atc ctg gac aac aac atc tac atc gtt ggt ggt cag 96
 Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
 20 25 30
 tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144
 Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
 35 40 45
 gct atc tgc act ggt gtt atc aac ctg aac gtt ctg tct act act cgt 192
 Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr Arg
 50 55 60
 ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240
 Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
 65 70 75 80
 ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288
 Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
 85 90 95
 aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 330
 Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

<210> 19
 <211> 110
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met22Leu and
 Met75Leu substitutions (recombinant RaCOR1
 Met22Leu Met57Leu)

<400> 19
 Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Lys Thr Pro Ile

1	5	10	15
Ile Cys Asn Thr	Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln		
20	25	30	
Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys			
35	40	45	
Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr Arg			
50	55	60	
Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys			
65	70	75	80
Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu			
85	90	95	
Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro			
100	105	110	

<210> 20
 <211> 333
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met at position 1,
 Met23Leu and Met58Leu substitutions (recombinant
 Met(-1) RaCOR1 Met22Leu Met57Leu)

<220>
 <221> CDS
 <222> (1)..(333)
 <223> Met(-1) RaCOR1 Met22Leu Met57Leu

61A

<400> 20	
atg cag aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg	48
Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro	
1 5 10 15	
atc atc tgc aac act atc ctg gac aac aac atc tac atc gtt ggt ggt	96
Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly	
20 25 30	
cag tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt	144
Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val	
35 40 45	
aaa gct atc tgc act ggt gtt atc aac ctg aac gtt ctg tct act act	192
Lys Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr	
50 55 60	
cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg	240
Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro	
65 70 75 80	
tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc	288
Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys	
85 90 95	

gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 333
 Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

<210> 21
 <211> 111
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met at position 1,
 Met23Leu and Met58Leu substitutions (recombinant
 Met(-1) RaCOR1 Met22Leu Met57Leu)

<400> 21
 Met Gln Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
 1 5 10 15
 Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn Ile Tyr Ile Val Gly Gly
 20 25 30
 Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
 35 40 45
 Lys Ala Ile Cys Thr Gly Val Ile Asn Leu Asn Val Leu Ser Thr Thr
 50 55 60
 Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
 65 70 75 80
 Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
 85 90 95
 Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

BLM

<210> 22
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with (His)6 tag, Met at
 position 7, Met23Leu and Met58Leu substitutions
 (recombinant Met(-1) RaCOR1 Met22Leu Met57Leu-(His)6)

<400> 22
 His His His His His His Met Gln Asn Trp Ala Thr Phe Gln Gln Lys
 1 5 10 15
 His Ile Ile Asn Thr Pro Ile Ile Cys Asn Thr Ile Leu Asp Asn Asn
 20 25 30
 Ile Tyr Ile Val Gly Gly Gln Cys Lys Arg Val Asn Thr Phe Ile Ile
 35 40 45

Ser Ser Ala Thr Thr Val Lys Ala Ile Cys Thr Gly Val Ile Asn Leu
50 55 60

Asn Val Leu Ser Thr Thr Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr
65 70 75 80

Ser Ile Thr Pro Arg Pro Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn
85 90 95

Tyr Ile Cys Val Lys Cys Glu Asn Gln Tyr Pro Val His Phe Ala Gly
100 105 110

Ile Gly Arg Cys Pro
115

<210> 23
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease with Gln1Ser substitution
(recombinant RaCOR1 Q1S)

<220>
<221> CDS
<222> (1)..(330)
<223> RaCOR1 Q1S

<400> 23
tca aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg atc 48
Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile
1 5 10 15

atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt cag 96
Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
20 25 30

tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt aaa 144
Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
35 40 45

gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act cgt 192
Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg
50 55 60

ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg tgc 240
Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
65 70 75 80

ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc gaa 288
Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
85 90 95

aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 330
Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
100 105 110

<210> 24
 <211> 110
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Gln1Ser substitution
 (recombinant RaCOR1 Q1S)

<400> 24
 Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro Ile
 1 5 10 15
 Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly Gln
 20 25 30
 Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val Lys
 35 40 45
 Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr Arg
 50 55 60
 Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro Cys
 65 70 75 80
 Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys Glu
 85 90 95
 Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

<210> 25
 <211> 333
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met at position 1
 and Gln2Ser substitution

<220>
 <221> CDS
 <222> ()..(333)
 <223> Met(-1) RaCOR1 Q1S

<400> 25
 atg tca aac tgg gct act ttc cag cag aaa cat atc atc aac act ccg 48
 Met Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
 1 5 10 15
 atc atc tgc aac act atc atg gac aac aac atc tac atc gtt ggt ggt 96
 Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly
 20 25 30
 cag tgc aaa cgt gtt aac act ttc atc atc tct tct gct act act gtt 144
 Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
 35 40 45

aaa gct atc tgc act ggt gtt atc aac atg aac gtt ctg tct act act 192
 Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr
 50 55 60

cgt ttc cag ctg aac act tgc act cgt act tct atc act ccg cgt ccg 240
 Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
 65 70 75 80

tgc ccg tac tct tct cgt act gaa act aac tac atc tgc gtt aaa tgc 288
 Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
 85 90 95

gaa aac cag tac ccg gtt cat ttc gct ggt atc ggt cgt tgc ccg 333
 Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

<210> 26
 <211> 111
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Rana
 catesbeiana ribonuclease with Met at position 1
 and Gln2Ser substitution

<400> 26
 Met Ser Asn Trp Ala Thr Phe Gln Gln Lys His Ile Ile Asn Thr Pro
 1 5 10 15

Ile Ile Cys Asn Thr Ile Met Asp Asn Asn Ile Tyr Ile Val Gly Gly
 20 25 30

Gln Cys Lys Arg Val Asn Thr Phe Ile Ile Ser Ser Ala Thr Thr Val
 35 40 45

Lys Ala Ile Cys Thr Gly Val Ile Asn Met Asn Val Leu Ser Thr Thr
 50 55 60

Arg Phe Gln Leu Asn Thr Cys Thr Arg Thr Ser Ile Thr Pro Arg Pro
 65 70 75 80

Cys Pro Tyr Ser Ser Arg Thr Glu Thr Asn Tyr Ile Cys Val Lys Cys
 85 90 95

Glu Asn Gln Tyr Pro Val His Phe Ala Gly Ile Gly Arg Cys Pro
 100 105 110

<210> 27
 <211> 2855
 <212> DNA
 <213> Rana pipiens

<220>
 <223> Rana pipiens ribonuclease (RaPLR1) Clone 5a1b cDNA
 insert

<220>
 <221> CDS

<222> (97)..(481)

<223> RaPLR1

<220>

<221> sig_peptide

<222> (97)..(165)

<400> 27

atcagttgct catcgtttga ccaagttggt ttccatctga agcaatattt atatataatt 60
tctcttatat ataaaggcct gatcacgact tccaga atg ttt cca aaa ttc tca 114
Met Phe Pro Lys Phe Ser
1 5
ttt ctc ctg ata ttt gca gtt gtt ttg agt ctc act cat aag tcc tta 162
Phe Leu Leu Ile Phe Ala Val Val Leu Ser Leu Thr His Lys Ser Leu
10 15 20
tgt caa gac tgg ctt acg ttt cag aag aag cac ctg aca aac acc cgg 210
Cys Gln Asp Trp Leu Thr Phe Gln Lys Lys His Leu Thr Asn Thr Arg
25 30 35
gat gtt gac tgt aat aat atc atg tca aca aac ttg ttc cac tgc aag 258
Asp Val Asp Cys Asn Asn Ile Met Ser Thr Asn Leu Phe His Cys Lys
40 45 50
gac aag aac act ttt atc tat tca cgt cct gag cca gtg aag gcc atc 306
Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro Glu Pro Val Lys Ala Ile
55 60 65 70
tgt aaa gga att ata gcc tcc aaa aat gtg tta act acc tct gag ttt 354
Cys Lys Gly Ile Ile Ala Ser Lys Asn Val Leu Thr Thr Ser Glu Phe
75 80 85
tat ctc tct gat tgc aat gta aca agc agg cct tgc aag tat aaa tta 402
Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg Pro Cys Lys Tyr Lys Leu
90 95 100
aag aaa tca act aat aca ttt tgt gta act tgt gag aat caa gct cca 450
Lys Lys Ser Thr Asn Thr Phe Cys Val Thr Cys Glu Asn Gln Ala Pro
105 110 115
gta cat ttc gtg ggt gtc gga cat tgc tagaaatatg tttgacaaca 497
Val His Phe Val Gly Val Gly His Cys
120 125
gggatgtgat aagcagctgc aagaaattat tttgaagtga atttactaaa gacactaatt 557
ttgcataaat tttccccaga gcttacgggt agtaagaaaa ttccaacagg gagccaagca 617
cagaaagtaa actaaggagc caaagtaatt ataaaagtca cactggaccg ctgctactgc 677
actcagatga ccaaagtaga aacagacaaa aacagcagag ttgggaagcg cagatccggg 737
aggtggcggg gagtcaattg gggatggagt ccatgtgaga tttggaaccg tttgttgctg 797
gtgaagcatg tggccggtgc acagtacaca tggggaaaga tagtcggatt ggccgggctc 857
gctgtggtgg tgccggcggt tgagccaaag gtgggtggga gatggctgtc ccccttctg 917
tgggggctgt ggacagaggg agctgcggac caggggtggg aggctggag agaattttca 977

aacagctgac gtggccgggg ctgggcagca tcggggaggg gaagggctgg gctcagatcc 1037
 aggaagcatg gtcactgtat gaccagagtg gaagatggca gagccgctgc agtggccggg 1097
 gagaccagag ggatctgtgc ccagcctttc ccctccctga tgtggcccgt ttttggttat 1157
 ggtaaccgct cccagctggt tgggggtggt ttcgggcttc gcatttttgg tctgcggctc 1217
 cctctgtcca cgGCCctcat ggaggggggg tgggcatttc tccaccgct ttggctctgt 1277
 tgctggcact gtcgcagcga gtttggccag tcatggctca ttttccatt tgtcatgtgt 1337
 gttggttgca tgttttgtcg gcggtggact gttttgaatt tcacatggat tccatcttcg 1397
 gttggttcct tgccacctcc tggatctgtg ctttccaatt ctgttttttc cccagcgctt 1457
 agtggatgca gtgaaactct ggtgattacc atcatccaat catgtgcaag aaaaaatatt 1517
 ttcataatttc ttccacccaa ttgggtattc attaggaagt ttgagcacat tcacgttcta 1577
 gggaaaatga gtgcaactgc acttccaaag ttcacagtct atttgccttt agtaaatacca 1637
 cccattatt tctgagcaga ggacaaatct atggcaacaa aaaaacttta cctactgaat 1697
 tattttatat tgattgaaga taatctttct ttcatttctt aaatattgta atcaaaatta 1757
 atacataaca gctatgtatt ataccacagc agcaaagtgt aaaatagttt taaacgtaaa 1817
 atatgtttta ccttaaagtg gaagtaaact tctatcacta aattttacct ataggtgaga 1877
 cccatgcgct cttcaggaat ggccgctggg gctgttcctt cagagccctg tgctgcgaac 1937
 ggccgctccc gtgtgcatgt acaggagtga cgtcatcaca gtcgccgcca gtcacagagt 1997
 tagagttcaa gtgtgagtgg cttgagccac gatgatgtcg ctcccaaaca tgtgtgcggg 2057
 ggtctccgtt tgccggcgcag gacactgggg gaatagcatg ggtgtgccgt tccttcagag 2117
 catatgcgtg ggtgacgtca ctagctgcat ctaaagtaat atctcctaaa caatgcacat 2177
 ttaggagata gttacagtac ctatgggtaa gccttattgt aggcttacct ataggtaaaa 2237
 atcatgcatg ggagtttact tccatgtagg gatgaggaga gcaggctgac atattaaagt 2297
 aaaaatctta cctatgtagg gatgaggaga gcaggctgac atattaaagt aaaaatctta 2357
 cctatagtgg ttgaaagtag ttgaaaataa gatggcctgc agggctctaa aaaggctagg 2417
 atagcacagt atccacatga ggcaccagat ctgctcccc cacacatgag tagcaaggag 2477
 caatggtaat gtgagtttct taggctcgac cgtaaataag cgttggccct ccaagtgata 2537
 catgggagat aagcagatgt ccgcgtatgc acgcagacat atgtgggcgg atgttgggat 2597
 aggacgatca gagagatgct cagatctgcc cgaaggagaa aggtggaaac atccattcaa 2657
 tgtcatatgc ctaaagaagc caccacccat aaaaagttaa tagatcatca ggtggcagcc 2717
 aaccacacca ggcccaaagg aggtggccc cagtgaaccg tataggaaca gcactcagct 2777

B1
1

atcacataat tacacaagag tatagagacc cattgtgggt attaacaacc aaatggctaa 2837

aaaaaaaaaa aaaaaaaaaa

2855

<210> 28

<211> 127

<212> PRT

<213> Rana pipiens

<400> 28

Met Phe Pro Lys Phe Ser Phe Leu Leu Ile Phe Ala Val Val Leu Ser
1 5 10 15

Leu Thr His Lys Ser Leu Cys Gln Asp Trp Leu Thr Phe Gln Lys Lys
20 25 30

His Leu Thr Asn Thr Arg Asp Val Asp Cys Asn Asn Ile Met Ser Thr
35 40 45

Asn Leu Phe His Cys Lys Asp Lys Asn Thr Phe Ile Tyr Ser Arg Pro
50 55 60

Glu Pro Val Lys Ala Ile Cys Lys Gly Ile Ile Ala Ser Lys Asn Val
65 70 75 80

Leu Thr Thr Ser Glu Phe Tyr Leu Ser Asp Cys Asn Val Thr Ser Arg
85 90 95

Pro Cys Lys Tyr Lys Leu Lys Lys Ser Thr Asn Thr Phe Cys Val Thr
100 105 110

Cys Glu Asn Gln Ala Pro Val His Phe Val Gly Val Gly His Cys
115 120 125

<210> 29

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:CAAX motif to
target heterologous proteins to the plasma
membrane, where A = aliphatic amino acid and
X = Ser, Met, Cys, Ala or Gln

<400> 29

Cys Val Ile Met
1

<210> 30

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Rana pipiens
Onconase degenerate forward primer

<400> 30
agrgatgtkg attgygataa yatcatg 27

<210> 31
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana pipiens
Onconase degenerate reverse primer

<400> 31
aaartgmacw ggkgcctgrt tytcaca 27

<210> 32
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 32
cagaactggg ctactttcca gcagaaacat atcatcaaca ctccgatcat ctgcaacact 60
atcatggaca acaacatcta catcgttggt ggtcag 96

<210> 33
<211> 86
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 33
tacatcgttg gtggtcagtg caaacgtggt aacactttca tcatctctct gctactactg 60
ttaaacgtat ctgcactggt gttatc 86

<210> 34
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 34
atctgcactg gtgttactaa catgaacgtt ctgtctacta ctcgtttcca gctgaacact 60

tgcaactcgta cttctatcac tccgcgtccg tgcccc 96

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 35
gttgataaca ccagtgcaga t 21

<210> 36
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 36
atctgcactg gtgttatcaa c 21

<210> 37
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 37
actccgcgtc cgtgcccgtg ctcttctcgt actgaaacta actacatctg cgttaaactgc 60
gaaaaccagt acccggttca ttctgctggt atcgg 95

<210> 38
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 38
atatatctag aaataatttt atttaacttt aagaaggaga tatacatatg cagaactggg 60

ctactttcca g

71

<210> 39
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 39
cgcgccggat ccctactacg ggcaacgacc gataccagcg aaatgaac

48

<210> 40
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 40
cagaactggg ctactttcca gcagaaacat atcatcaaca ctccgatcat ctgcaacact 60
atcctgcaga acaacatcta catcgttggt ggtcag

96

<210> 41
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana ribonuclease synthetic gene (RaCOR1)
oligonucleotide

<400> 41
atctgcactg gtgttatcaa cctgaacgtt ctgtctacta ctcgtttcca gctgaacact 60
tgcaactcgtg cttctatcac tccgcgtccg tgcccc

96

<210> 42
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Rana
catesbeiana insertion primer for NdeI restriction
site

<400> 42
ggattccata tgcagaactg ggctattttc cag

33

<210> 43
<211> 6
<212> PRT
<213> Artificial Sequence

(B)
<220>
<223> Description of Artificial Sequence:six histidine
residue tag at amino terminus

<400> 43
His His His His His His
1 5